

What is claimed is:

1. A photoimageable dielectric epoxy resin system film comprising:
 - a. from about 5 to 80% of phenoxy polyol resin which is the condensation product of epichlorohydrin and bisphenol A, having a molecular weight of from about 40,000 to 130,000;
 - b. from about 0 to 90% of an epoxidized multifunctional bisphenol A formaldehyde novolac resin having a molecular weight of from about 4,000 to 10,000;
 - c. from 20% to 50% of a diglycidyl ether of bisphenol A having a molecular weight of from about 600 to 2,500;
 - d. less than 15% of a cationic photoinitiator;
 - e. from about 15% to about 35% liquid epoxy resin, having a molecular weight of from about 200 to about 600; and
 - f. from 0% to about 30% of a rheology modifier, and less than about 15 3% solvent.
2. The film of claim 1 wherein the epoxy resin system comprises:
from 10% to 40% of phenoxy polyol resin having a molecular weight of from about 60,000 to 90,000;
from about 12% to 30% of an epoxidized multifunctional bisphenol A formaldehyde novolac resin having a molecular weight of from about 5,000 to 7,000;
from about 25% to 40% of said diglycidyl ether of bisphenol A having a molecular weight of from about 1,000 to 1,700 wherein said diglycidyl ether bisphenol A is brominated; and

from about 15% to about 30% liquid epoxy resin, having a molecular weight of from about 250 to about 400.

3. The film of claim 1, wherein the epoxy resin comprises:

5 from 15% to about 30% of the phenoxy polyol resin;
from about 15% to about 20% of the epoxidized multifunctional bisphenol A formaldehyde novolac resin;

10 from about 27% to about 35% of the diglycidyl ether of bisphenol A; and
from about 20% to about 30% of the liquid epoxy resin

wherein the rheology modifier is silica and there is less than about 2% of the solvent.

4. The film of claim 3, wherein:

15 the phenoxy polyol resin has an epoxy value of about 0.03 equivalents per kg, a weight per epoxide of about 37,000 and a glass transition temperature of about 98°C;

the epoxidized multifunctional bisphenol A formaldehyde novolac resin has an epoxy value of about 4.7 equivalents per kilogram, as weight per epoxide of about 215 and a melting point of about 82°C;

20 the diglycidyl ether of bisphenol A has an epoxy value of about 1.5 equivalents per kilogram, a weight per epoxide of about 675 and a melting point of about 97°C; and

about 5 parts by weight of the resin weight complex triarylsulfonium hexafluoroantimonate salt photoinitiator.

5. The film of claim 1, wherein the epoxy resin comprises:
from about 10% to 40% of phenoxy polyol resin which is the condensation product of epichlorohydrin and bisphenol A, having a molecular weight of from about 40,000 to 130,000;

5 from 25% to 40% of the diglycidyl ether of bisphenol A having a molecular weight of from about 600 to 2,500;
from about 15% to about 32% liquid epoxy resin, having a molecular weight of from about 200 to about 600.

10 6. The film of claim 1, wherein the epoxy resin comprises:
from about 15% to 30% of phenoxy polyol resin which is the condensation product of epichlorohydrin and bisphenol A, having a molecular weight of from about 40,000 to 130,000;

15 from 27% to 35% of the diglycidyl ether of bisphenol A having a molecular weight of from about 600 to 2,500; and
from about 20% to about 30% liquid epoxy resin, having a molecular weight of from about 200 to about 600;

wherein the rheology modifier is silica and there is less than about 2% of the solvent.

7. The film of claim 6, wherein said photoimageable dielectric film lacks an epoxidized multifunctional bisphenol A formaldehyde novolac resin.